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NGB.381

REMARKS

Claims 1-17 are all the claims presently pending in the application. Claims 1-3 have been amended to more particularly define the invention. Claims 4-17 have been added to assure Applicant the degree of protection to which his invention entitles him

It is noted that the claim amendments made herein or later are not made to distinguish the invention over the prior art or narrow the claims or for any statutory requirements of patentability. Further, Applicant specifically states that no amendment to any claim herein or later should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Claims 1-3 stand rejected upon informalities (e.g. 35 U.S.C. §112, second paragraph). Claims 1-3 further stand rejected under 35 U.S.C. §102(b) as being anticipated by Japanese Publication No. 10-026143 (JP143).

These rejections are respectfully traversed in the following discussion.

I. THE CLAIMED INVENTION

An exemplary aspect of the invention, as recited in claim 1, is directed to a sealing device for a rolling bearing including a fixed ring including raceway groove, a seal mounting groove formed to a shoulder of the raceway groove, a rotational ring rotatable with respect to the fixed ring, including raceway groove, a circumferential step formed to a shoulder of the raceway groove of the rotational ring, and an annular resilient sealing member fit into the seal mounting groove, a sealing lip of the sealing member being brought into contact with a lateral surface of the circumferential step, wherein the sealing member includes a fluoro resin and a

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filler in an amount in a range of about 10 to 60 parts by weight based on 100 parts by weight of the fluoro resin, wherein the filler includes a first filler having a Mohs hardness in a range of about 6 to 8 in an amount in a range of about 25 to 75% by weight of the filler, and a second filler having a Mohs hardness of less than 6.

Another aspect of the invention, as recited in claim 6, is directed to a sealing member including a fluoro resin, and a filler in an amount in a range of about 10 parts to 60 parts by weight per 100 parts by weight of the fluoro resin, wherein the filler comprises a first filler having a Mohs hardness in a range of about 6 to 8 in an amount in a range of about 25% to 75% by weight of the filler and a second filler having a Mohs hardness of less than 6.

A further aspect of the present invention, as recited in claim 12, provides a composition for a sealing member including a fluoro resin, and a filler in an amount in a range of about 10 parts to 60 parts by weight per 100 parts by weight of the fluoro resin, wherein the filler comprises a first filler having a Mohs hardness in a range of about 6 to 8 in an amount in a range of about 25% to 75% by weight of the filler and a second filler having a Mohs hardness of less than 6.

Conventional sealing members are generally constituted by nitrile rubber, acryl rubber, or the like. Sealing members used in bearings rotating at high speed under high temperature are often made of a material including a fluoro rubber or fluoro resin due to the excellent wear and heat resistance of such materials. (See Application at page 3, lines 7-14)

However, when a fluoro resin (or rubber) is used for the material of the sealing member, surfaces of the roller bearing structure in sliding contact with the sealing member can be sometimes be worn by the sealing member, thus lowering the sealing performance

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prematurely. Additionally, powder worn from such surfaces can cause wear in the raceway of the bearing structure which can lead to fracture of the bearing. (See Application at page 3, lines 21-25 and page 4, lines 1-6)

The claimed invention, on the other hand, provides a sealing member including a fluoro resin and a filler in an amount in a range of about 10 to 60 parts by weight based on 100 parts by weight of the fluoro resin, wherein the filler includes a first filler having a Mohs hardness in a range of about 6 to 8 in an amount in a range of about 25 to 75% by weight of the filler, and a second filler having a Mohs hardness of less than 6. A sealing member having such a composition enables the reduction of wear of both the sealing member and the bearing ring, as well as long-lasting satisfactory sealing performance, even in a rolling bearing rotating at high speed under high temperature. (See Application at page 6, lines 23-25 and page 7, lines 1-4)

II. THE 35 USC § 112, SECOND PARAGRAPH REJECTION

Claims 1-3 stand rejected under 35 U.S.C. §112, second paragraph. The claims have been amended, above, to overcome this rejection. Specifically, the claims have been amended to more particularly point out the claimed ranges as requested by the Examiner.

In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

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III. THE JP143 REFERENCE

The Examiner alleges that the invention of claims 1-3 is anticipated by JP143.

However, Applicant respectfully submits that the reference does not teach or suggest each and every element of the claimed invention.

JP143 discloses a roller bearing sealing-up device described in the Background of the present Application. (See JP143 at Figure and Abstract) (See also Application at Background of the Invention)

However, JP143 does not disclose or suggest “a sealing member including a fluoro resin and a filler in an amount in a range of about 10 to 60 parts by weight based on 100 parts by weight of the fluoro resin, wherein the filler includes a first filler having a Mohs hardness in a range of about 6 to 8 in an amount in a range of about 25 to 75% by weight of the filler, and a second filler having a Mohs hardness of less than 6,” as recited in independent claim 1 (emphasis added). Independent claims 6 and 12 contain similar language.

JP143 actually does not address the material of the sealing member and, more particularly, does not teach or suggest a sealing member of the composition in claims 1-3. Rather, JP143 merely discloses the structure of a conventional sealing device, as described in the Background of the present Application.

In fact, as indicated in the Application, when a fluoro resin is used for the material of the sealing member of the sealing device described in JP143, the lateral surface 1t of the circumferential step on the side of the raceway track of the bearing ring which is in sliding contact with the lip 5b of the sealing member is sometimes worn, thus prematurely lowering the sealing performance of the device. Further, powder worn from the sealing member and/or

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from the surface of the bearing ring can intrude inside the bearing causing wear in the raceway which can lead to fracture of the bearing. (See Application at page 3, lines 7-25 and page 4, lines 1-6)

On the other hand, the composition claimed in the present invention enables the reduction of wear of both the sealing member and the bearing ring, as well as long-lasting satisfactory sealing performance, even in a rolling bearing rotating at high speed under high temperature. (See Application at page 6, lines 23-25 and page 7, lines 1-4)

Therefore, Applicant submits that there are elements of the claimed invention that are not taught or suggested by JP143. Therefore, the Examiner is respectfully requested to withdraw this rejection.

IV. CONCLUSION

In view of the foregoing, Applicant submits that claims 1-17, all the claims presently pending in the application, are patentably distinct over the prior art of record and are allowable, and that the application is in condition for allowance. Such action would be appreciated.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned attorney at the local telephone number listed below to discuss any other changes deemed necessary for allowance in a telephonic or personal interview.

To the extent necessary, Applicant petitions for an extension of time under 37 CFR §1.136. The Commissioner is authorized to charge any deficiency in fees, including

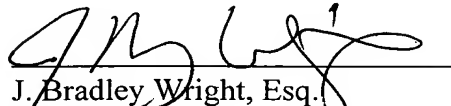
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extension of time fees, or to credit any overpayment in fees to Attorney's Deposit Account

No. 50-0481.

Respectfully Submitted,

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